

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (Currently Amended): A method for ~~performing durable reads of~~ reading a data page ~~in a system that permits lazy commit transactions~~, said method comprising:

making a change to the data page to generate a changed data page;
marking a durability indicator associated with the data page that indicates that the changed data page has yet to be written to a persistent data store;
storing data associated with the change in a transaction log buffer; and
flushing ~~[[a]] the transaction log buffer associated with said data page to the persistent data store, based on the durability indicator, prior to said the changed data page being read as a part of a durable read operation.~~

Claim 2 (Currently Amended): The method of claim 1 further comprising:

~~marking said data page when modified by a lazy commit transaction; and~~
unmarking ~~said data page~~ the durability indicator when ~~said commit~~ the transaction log buffer associated with said data page is flushed.

Claim 3 (Currently Amended): The method of claim 2 wherein ~~the step of flushing [[a]] the transaction log buffer associated with said data page prior to said data page being read by a durable read operation~~ occurs when ~~said data page~~ the durability indicator is marked, and wherein said method further comprises reading an unmarked data page as part of a ~~durable read operation that uses data that has been stored in the persistent data store,~~ without first flushing said transaction log buffer associated with said data page.

Claim 4 (Currently Amended): The method of claim ~~[[3]]~~ 1 wherein ~~the step of marking a data page when modified by a lazy commit transaction~~ the durability indicator comprises writing a value of a bit associated with said data page.

Claim 5 (Original): The method of claim 4 wherein the bit is stored in said data page.

Claim 6 (Original): The method of claim 4 wherein the bit is stored in a reference table.

Claim 7 (Currently Amended): The method of claim ~~[[3]]~~ 1 wherein ~~the step of marking a data page when modified by a lazy commit transaction~~ the durability indicator comprises recording, in a reference location associated with said data page, a copy of a log sequence number from said transaction log buffer and corresponding to ~~said modification of said the change to the data page by said lazy commit transaction.~~

Claim 8 (Original): The method of claim 7 wherein said copy of the log sequence number is stored in said data page.

Claim 9 (Currently Amended): The method of claim 7 wherein said copy of the log sequence number is stored in a ~~lazy commit~~ reference table.

Claim 10 (Currently Amended): The method of claim 7 wherein the copy of the log sequence number is used to identify ~~the lazy commit~~ a transaction in order to cause said ~~lazy commit~~ transaction to effect the ~~step of flushing of the said~~ transaction log buffer ~~associated with said data page and unmarking said data page when said data page is flushed.~~

Claim 11 (Currently Amended): A computer-readable medium having computer-readable instructions for ~~performing durable reads of~~ reading a data page in a system that permits lazy ~~commit transactions~~, said computer-readable instructions comprising instructions for:
making a change to the data page to generate a changed data page;
marking a durability indicator associated with the data page that indicates that the changed data page has yet to be written to a persistent data store;
storing data associated with the change in a transaction log buffer; and
flushing ~~[[a]]~~ the transaction log buffer associated with said data page to the persistent data store, based on the durability indicator, prior to said the changed data page being read by a durable read operation.

Claim 12 (Currently Amended): The computer-readable medium of claim 11 further comprising instructions for:

~~marking said data page when modified by a lazy commit transaction; and~~
unmarking ~~said data page~~ the durability indicator when said transaction log buffer associated with ~~said data page~~ is flushed.

Claim 13 (Currently Amended): The computer-readable medium of claim 12 wherein ~~the step of flushing [[a]] the transaction log buffer associated with said data page prior to said data page being read by a durable read operation~~ occurs when said data page the durability indicator is marked, and wherein a ~~durable~~ read operation that uses data that has been stored in the persistent data store can read an unmarked data page without first flushing said transaction log buffer ~~associated with said data page~~.

Claim 14 (Currently Amended): The computer-readable medium of claim ~~[[13]]~~ 11 wherein the instructions for ~~the step of marking a data page when modified by a lazy commit transaction~~ the durability indicator further comprises instructions for changing a value of a ~~lazy commit~~ bit associated with said data page.

Claim 15 (Currently Amended): The computer-readable medium of claim 14 further comprising instructions for the ~~lazy commit~~ bit to be stored in said data page.

Claim 16 (Currently Amended): The computer-readable medium of claim 14 further comprising instructions for the ~~lazy commit~~ bit to be stored in a ~~lazy commit~~ reference table.

Claim 17 (Currently Amended): The computer-readable medium of claim ~~[[13]]~~ 11 wherein the instructions for marking ~~a data page when modified by a lazy commit transaction~~ the durability indicator further comprises instructions for recording a copy of a log sequence number, from said transaction log buffer and corresponding to ~~said modification of said~~ the change to the data page by said lazy commit transaction, in a reference location associated with said data page.

Claim 18 (Original): The computer-readable medium of claim 17 further comprising instructions for said copy of the log sequence number to be stored in said data page.

Claim 19 (Currently Amended): The computer-readable medium of claim 17 further comprising instructions for said copy of the log sequence number to be stored in a ~~lazy commit~~ reference table.

Claim 20 (Currently Amended): The computer-readable medium of claim 17 further comprising instructions for the copy of the log sequence number to be used to identify the ~~lazy commit~~ a transaction in order to cause said ~~lazy commit~~ transaction to effect the step of flushing of the ~~said~~ transaction log buffer ~~associated with said data page and unmarking said data page when said data page is flushed, as well as instructions for said lazy commit transaction to flush said transaction log associated with said data page and unmark said data page when said data page is flushed.~~

Claim 21 (Currently Amended): A data page reading system ~~for performing both lazy commit transactions and durable reads~~, said system comprising:

- a plurality of data pages;
- a plurality of transaction logs associated with each of said plurality of data pages;
- a subsystem that makes a change to one of the data pages to generate a changed data page, and marks a durability indicator associated with the data page that indicates that the changed data page has yet to be written to a persistent data store, data associated with the change being stored in the associated transaction log; and
- a durability subsystem that flushes ~~[[a]]~~ the associated transaction log, ~~from among said plurality of transaction logs, associated with a data page, from among said plurality of data pages to a persistent data store, based on the durability indicator, prior to said the~~ changed data page being read by a durable read operation.

Claim 22 (Canceled)

Claim 23 (Currently Amended): The system of claim ~~[[22]]~~ 21 further comprising a ~~durable~~ read subsystem whereby said ~~durable~~ read operation, when executing the process of reading said data page, checks whether said ~~data-page~~ durability indicator has been marked and, (a) if so, flushes a transaction log associated with said data page, unmarks said ~~data-page~~ durability indicator, and reads a set of data from said data page, and, (b) if not, reads the set of data from said data page without first flushing said transaction log associated with said data page.

Claim 24 (Currently Amended): The system of claim 23 wherein the data page comprises a ~~lazy-commit~~ bit associated with said data page that is changed when said data page is modified by said ~~lazy-commit~~ a transaction.

Claim 25 (Currently Amended): The system of claim 24 wherein the ~~lazy-commit~~ bit is stored in said data page.

Claim 26 (Currently Amended): The system of claim 24 wherein the ~~lazy-commit~~ bit is stored in a ~~lazy-commit~~ reference table.

Claim 27 (Currently Amended): The system of claim 23 further comprising a marking subsystem which records a copy of a log sequence number, from said transaction log and corresponding to said modification of said data page by said ~~lazy-commit~~ a transaction, in a reference location associated with said data page when said ~~data-page~~ durability indicator is marked.

Claim 28 (Currently Amended): The system of claim 27 wherein marking subsystem uses the copy of the log sequence number to identify the ~~lazy-commit~~ transaction in order to cause said ~~lazy-commit~~ transaction to effect ~~the step of~~ flushing of said transaction log associated with said data page and unmarking said ~~data-page~~ durability indicator when said data page is flushed.